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THE DEVELOPMENT AND FUNCTIONS

OF THE

GRADUATE SCHOOL

BY

CHARLES E. MUNROE

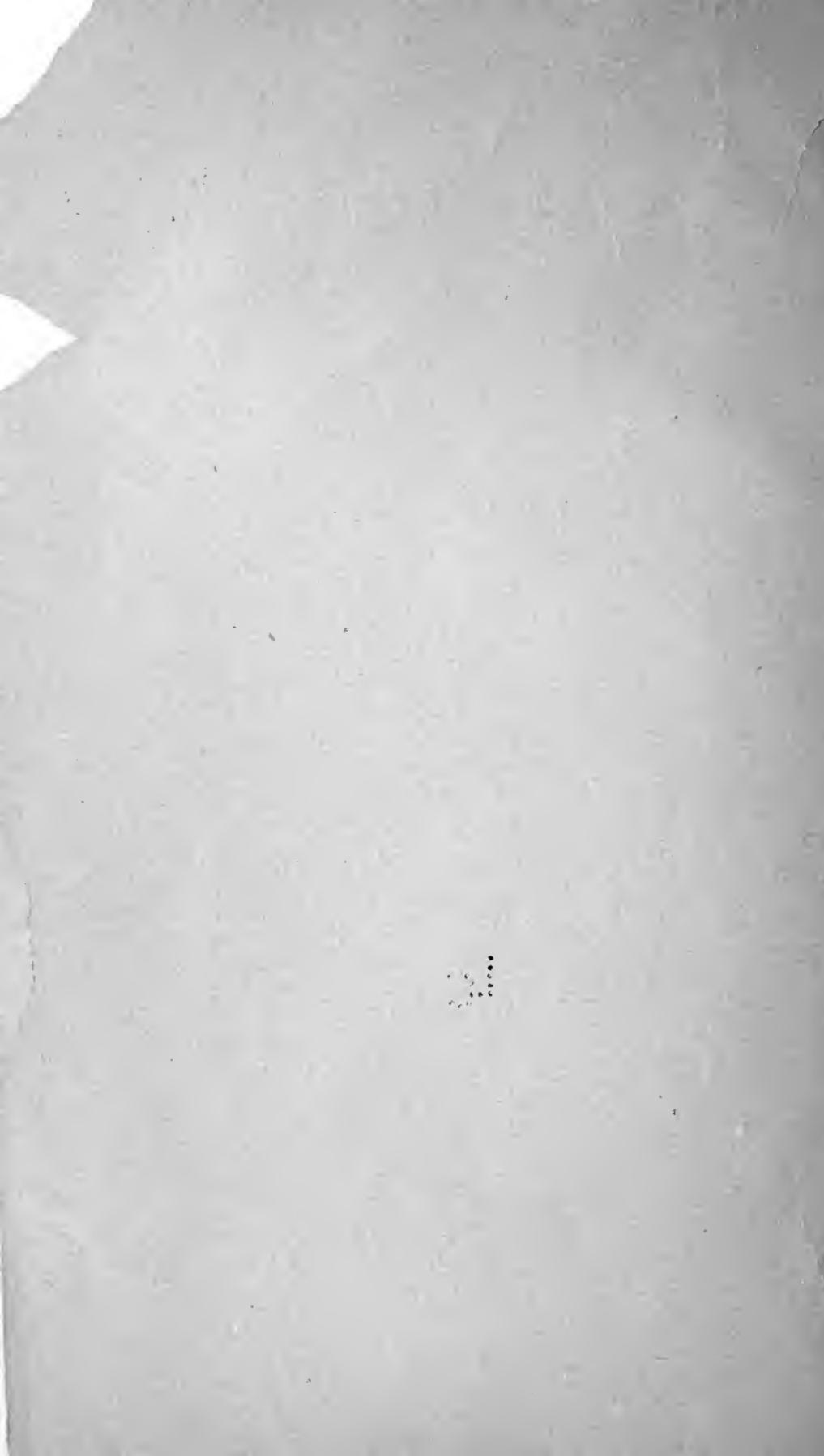
DEAN OF THE SCHOOL OF GRADUATE STUDIES OF THE COLUMBIAN UNIVERSITY

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THE DEVELOPMENT AND FUNCTIONS
OF THE
"GRADUATE SCHOOL,"
BY

CHARLES E. MUNROE,

Dean of the School of Graduate Studies.

One year ago the inauguration of the School of Graduate Studies of this University was effected when we gathered at the initial opening exercises held in this place to listen to the masterly address delivered by our revered President on the "Science of Universal History Considered as the Indispensable Complement of the Physical Sciences." This event, which attracted attention quite beyond the limits of our community, marked a most important epoch in the history of this institution, in the educational development of Washington, and in the academic career of him who spoke, for it signalized our growth into a University in the most advanced sense in which this term is used; it offered for the first time opportunities for the cultured students of our country to pursue advanced studies and conduct researches under specialists of acknowledged standing and reputation at the National Capital, where there is gathered a larger fund of material (much of which is original or unique) in the museums and archives; where there exists a greater number of and more completely specialized libraries; where there is assembled a greater number of specialists, particularly in the natural and physical sciences, than is to be found in any other community in this broad land, and where alone in this country the larger functions of government may be viewed close at hand and in detail; and, finally, this event marked the realization of

the plans for that university work which Dr. Welling presented in his address on assuming the presidency in 1871 and for the prosecution of which he subsequently constantly and persistently labored under the most discouraging circumstances.

As we listened to the President's address, the well-turned phrases, the polished diction, the gems of thought, the cogent argument, and the apt illustrations, we felt that a master was before us, from whom we were receiving the results of the best thought, the widest research, the long and varied experience of one whose scholarship was broad, profound, ripe, exact, and tolerant, and we rejoiced that our new departure, the success of which meant so much to this institution, to this community, and to the cause of sound learning, could not have been begun more auspiciously.

But a year has passed, and on the anniversary of this event it is a cause for profound regret and heartfelt sorrow that the voice which charmed us is mute; the virile brain is at rest; the richly-stored mind can no longer give us of its wealth and wisdom. An all-wise but mysterious Providence has deemed it best, and the hand of death has been laid on the serene scholar, the philosopher, the jurist, the historian, the patriot, the genial companion, the courtly gentleman, the wise and sympathetic counsellor, our President. I would that I were skilled in the arts of the orator that I might sound his full meed of praise and the extent of our loss. Fortunately, his eulogy will be pronounced by one more competent and on a more fitting occasion, but I may be permitted to express here and in this connection my deep sense of personal and irreparable bereavement.

The official announcement of the "Graduate School" states that "the School will be opened each year with a public address by a member of the Faculty," and unhappily for you and for me this duty has this year fallen to my lot, for I am not fitted either by aptitude or experience for making speeches "on occasions," and I feel particularly embarrassed by the unusual merit of the address made at our first opening, whose excellence must always remain as a standard for those who follow in this place.

W. D. Johnston

Owing to this fact, and to my studies for many years past having been along somewhat narrow lines, I had prepared to address you upon a feature in my specialty, but the unexpected death of the creator and organizer of this School rendered it, in my judgment, and I trust in yours also, more fitting that what he had accomplished and what, so far as I am aware, he hoped for in this School should be placed on record and recited here, and with your kind permission I will devote the time at my disposal to the consideration of the development, scope, and objects of the School of Graduate Studies.

In his inaugural discourse, on being inducted into the presidential chair, November 6, 1871, Dr. Welling selected as his theme "The Fundamental Elements of Intellectual Education," and while discussing, as he was so very well fitted to do, the relative merits of ancient and modern learning in an academic curriculum he says :

"Accepting the theme thus suggested to me by the proprieties and formalities of this occasion, I have, in the first place, to inquire what is the object which we should set before us in determining the elements of higher academic learning. For with the lower stages of juvenile culture we are not directly concerned tonight, and as to them there is not so much room for difference among educators. According to the terms of the problem proposed by higher education we are called, as I conceive, not to discuss the special adaptation of specific educational studies designed to meet the requirements of any particular vocation in industrial or professional life, but to investigate the fundamental elements of that more liberal and generous culture which looks to the symmetrical development of the whole man in all his powers and capacities; and, as this is the object of higher academic education, it necessarily follows that any system of such education must be defective if it omits from its purview any one of those essential studies by which the human race has been advanced to its present civil, social, intellectual, moral, and religious status. As in ancient Egypt men were able, it is said, by the graduated scales of the nilometer not only to measure the depth of the fertilizing waters that covered the land, but also to predict the extent of the coming harvest, so from the standard of education in any age we may not only

gauge the degree in which it rises to the wants of the present time, but may also forecast the destiny it prefigures to the coming generation. Institutions of higher learning are founded among men to perpetuate and to transmit the existing stock of knowledge in all those departments which conduce to the intellectual progress of our race. Failing in this end, whether from a defect in the methods or means of education, they visibly fall below the standard erected for them in the requirements of the living age; but they do not subserve all the ends of their creation by achieving this purpose alone. It is not enough for educators in the higher walks of their art to preserve and propagate the elements of didactic knowledge, but they are bound so to impart these elements in all their fullness and vitalizing power as to create the conditions of a growing *advancement* in learning and civilization. * * *

" It was from a disregard of this latter educational requirement that the progress of mental culture was arrested in Greece so soon as the pedagogues who succeeded the age of original inquiry contented themselves simply with the existing state of knowledge, instead of so learning it themselves and so teaching it to their pupils as to propagate with knowledge the love of it, and thus to *stimulate* and *direct* that *spirit of inquiry* which leads to never-ending conquests in the world of thought and nature; and so, too, during the Middle Ages knowledge came to a standstill in Europe, not from any torpor of the mental faculties among the school-men, for never were men more laborious and more acute than they, but because their mental activity revolved in the verbal philosophy of Aristotle as if in a treadmill, and was not suffered to go beyond the tether of that professorial and didactic discipline which bound it to the past, as if the past had contained in itself the be-all and the end-all of human philosophy. They failed to see in the successive stages of human history the stepping-stones of an ever-advancing progress. Under such a theory science degenerated into a mere logomachy and literature dwindled into a dry and formal rhetoric. * * *

" It is only in so far as the Occidental nations have made learning reproductive and progressive that ' fifty years of

Europe' are, as Tennyson tells us, better than a 'cycle of Cathay.' * * *

"If it be, as I have argued, the function of a university not only to embody and perpetuate the existing store of human knowledge, but also to consult for the 'progression of the sciences,' it necessarily follows that the sciences based on physical research must occupy a prominent place in any system of modern intellectual education. Considered apart from the modifying force of Christianity, our modern age differs from that of Greece and Rome mainly by virtue of those positive sciences which have shed such a surpassing lustre on every path of modern life and on every walk of modern art; and these sciences, more than any others, contain in themselves the conditions and the presage of a never-ending advancement."

Through all this the central idea is that the higher academic learning which he sought to engraft upon the Columbian College as it then existed was that which led to the advancement of knowledge through research, and those of us who are familiar with Dr. Joseph Henry's views as to what was meant by the "advancement of knowledge" and how zealously and fortunately for the cause of science, with eventual success, he strove for the adoption of his interpretation of the similar phrase in Smithson's will are not left in doubt as to Dr. Welling's concurrence in Henry's views, when, in enumerating the opportunities at command, he says:

"There is nothing esoteric in the learning of our day; and what advantages are ours both for gaining and diffusing the blessings of highest culture? For here, at our very doors, we have the Smithsonian Institution, perpetually working, under the guidance of its illustrious Secretary, on the boundaries of knowledge in all departments, thus literally fulfilling the will of its founder and exemplifying the highest function of a university by increasing and diffusing knowledge among men; and here is the National Library of Congress, with its well-filled alcoves, open alike to teachers and scholars for purposes of literary or scientific research; and here, for the study of technology, are the accumulated fruits of American inventive genius stored in the Patent Office; and here, for the progressive scientific study of astronomy, is the National Observatory; and here is

that no less learned than useful school of practical geometers connected with the Coast Survey; and here are the gardens which, under the keeping of the Agricultural Department, invite to the study of botany not in dry herbaria and in drier tomes, but amid flowery walks through which Shenstone would have loved to ramble by the side of Linnæus or Hasselquist; and here, for the student of law, are the highest seats of our American themis, as here, for the votaries of the healing art, are the priceless treasures of the Medical Museum, without any rival in the world among institutions of its kind; and here, by the munificence of him who stands at the head of the governing board of our College, is the Corcoran Gallery of Fine Arts, to keep alive the love of beauty in the soul of man.

“God grant that the day may not be far distant when our College, already a university in embryo, may be able by the munificence of its endowments, and therefore by the range of its studies, to take advantage of all these singular opportunities for promoting true culture in all its departments.”

It is today generally accepted in this country that a great university discharges two important functions, mutually dependent yet essentially distinct, and both promoting in a high degree the civilization, refinement, intelligence, and spiritual elevation of the community in which it exists; that such an institution should be at once an educator of youth and a source of knowledge, and if it fails to do its work well in either of these capacities the public interest suffers. But at the time this address was made it was still generally believed that the purpose of the higher institutions as well as of the lower institutions of learning was to instruct pupils in existing knowledge, and the idea prevailed that in most departments teaching was the only occupation for which the professors were paid. Little or no provision was made for research, and if an ambitious student followed a difficult investigation to its result the institution rejoiced and was glad to profit by the reputation gained; but this was regarded as work of supererogation and purely a question of personal merit. It is true that original research had been for some years conducted by students in the scientific schools at Harvard and Yale and occasionally by students at other institutions; but this seems to have been brought about by the inspira-

tion and example of certain individual professors of rare eminence and eager to promote scientific achievement, and not because the institution required it as a prerequisite to a degree, though the degrees obtained in this manner soon attained to very high esteem.

It is true also that the custom of admitting graduate students in residence had obtained at several of the existing institutions for many years, and that the degree of Doctor of Philosophy was conferred in certain instances on students completing two years' work in two distinct departments of learning, passing satisfactory final examinations, and presenting a thesis giving evidence of high attainment in the branches they had pursued, but the acquisition rather than the advancement of knowledge seems to have been the duty imposed upon them.

In fact, so far as it appears from the record, the graduate department or school, as now recognized, began at Cornell in 1871; at Harvard and Yale in 1872; at the University of Michigan in 1875; Johns Hopkins in 1876; Princeton in 1877; University of Virginia in 1880; University of Pennsylvania in 1881; Leland Stanford in 1891; University of Chicago in 1892; Brown and Columbian in 1893; and the importance and benefit of the methods of these schools was so immediately recognized that the attendance rose, speaking in round numbers, from 200 in 1871-'72 to 2,000 in 1889-'90.

It was at this time and on the very threshold of this movement, which has proved of such inestimable value in the promotion of learning and the advancement of knowledge, that Dr. Welling plead his cause, and from the inspection of his annual reports, his contributions to the current press, and his addresses before conventions since that time it appears that in all seasonable places and on all promising occasions he sought the means by which this grand scheme might be adopted and made operative. Thus, in his report for 1888-'89, he says:

"I adhere in 1889 only the more emphatically to the opinion expressed in 1872 that it is only as a rival of great seats of learning that the Columbian University can ever realize the height of its mission."

In these articles he repeatedly insists on larger opportunities of original research. At times he gives detailed schemes for

portions of the Graduate School, such as the School of Political Science and the School of Comparative Jurisprudence, in the latter of which "the law of the civilized world shall be taught as a history and a philosophy, from the first rude germs of the clan stage of human government up to the highest evolutions of that international law which today sits supreme above all polities and all conventions of men, and which by its moral sovereignty is perpetually moving forward the boundaries of truth and righteousness in the relations of States. In such a school the codes of particular nations would pass under review only so far as they marked successive stages of human progress, and only so far as each has contributed its rays to what Lord Coke called 'the gladsome light of jurisprudence.' The civil law of Rome, for instance, would be taught in its origin under the early kings; in its progress from the kings to the twelve tables; from the twelve tables to Augustus; from Augustus to Constantine; from Constantine to Justinian, and from Justinian to the present time. But it would be expounded as a philosophy teaching by example and not as a barren erudition or as a branch of curious and antiquarian learning. In such a school we should not be called to do over again the unfruitful work of Heineccius and Gravina, even for the sake of tracking Gibbon to the insufficient sources from which he drew the materials for his remarkable chapter on the civil law. In such a school the common law of England would be studied in its primitive sources—the sources which, in giving to it color and direction, have determined for us its true significance and its true interpretation. If so simple a story as the parable of the Prodigal Son is found to contain four distinct references to the sociology of primitive times, it need not surprise us that the codes of the world should swarm with survivals from the early stages of primeval law. Anthropological science by its comparative methods is transforming the explication of primitive law, and therefore is transforming the history of law as an evolution of the human race; and in such a school the international law of the civilized world would be taught not only as a body of doctrine and of acquired facts, but preëminently as a spirit working for righteousness in the intercourse of nations, and therefore working above and beyond the boundary already reached by the foremost

nations of Christendom—that is, the science of jurisprudence would become prophetic of the next things to be hoped for and labored for in legislation and international law, because it would mark the point of the curve through which the nations are moving today."

Not all of these noble and far-sighted plans have yet been made operative; but in 1892 it was made the duty of the faculties of the Columbian College, the Medical School, and the Corcoran Scientific School of this University to devise schemes of graduate study in their respective departments, and this duty was so successfully performed and the teaching force so increased that the Graduate School on its present plan was opened for instruction in the following year, with 24 professors, offering 72 courses in the ancient and modern languages, history and philosophy, mathematics pure and applied, the natural and physical sciences, and in civil and electrical engineering, and with 24 students enrolled.

The conferring of the degrees of Master in Arts and Science and of Doctor in Philosophy was allotted to this School of the University, and the standard of the engineering degrees was raised by directing that thenceforward the degree of Bachelor of Science alone should be given to students successfully completing either of the four years' required courses in the Corcoran Scientific School, and that the degrees of Civil and of Electrical Engineer should only be conferred on those who, after receiving the Bachelor of Science degree in these branches of technology, should successfully pursue one year's study as prescribed in the Graduate School, sustain a satisfactory examination, and present a satisfactory thesis. In all cases residence at the University was to be an essential to the attainment of a degree.

When the question of the degrees to be offered was under discussion the custom which prevails at some universities of awarding different doctorate degrees according to the character of the studies pursued by the candidates was considered, and it was decided that it was unwise and unnecessary to multiply the number of degrees, and that the conferring of the Doctor of Philosophy degree only upon all who satisfied our requirements, regardless as to whether their preliminary degrees were in arts or science, was justified by reputable precedence and

would lead to no misunderstanding in practice. Indeed, the distinctions which formerly characterized the studies leading to the Bachelor of Arts degree from those leading to the Bachelor of Science degree have been greatly modified in recent years by the introduction of the elective system into our colleges, so that science studies in these colleges carry equal weight with the humanities, and the introduction of the modern languages, political economy, history, philosophy, and the like into the required courses of the schools of science and technology has served to still further diminish the distinction, while the severe methods of training and criticism of authorities common to science methods renders the graduate of the latter schools equally fit if not better prepared than those educated by the older methods to conceive novel and original views and to cope with the difficulties of research work.

In this hall at the inauguration of the Corcoran Scientific School, speaking on this subject of scientific studies, Major J. W. Powell said :

“The establishment of a school of science and arts at the Capital of the Nation, through the munificence of Washington’s venerable philanthropist, is a landmark in the progress of culture and the history of education, and shows that the demands of modern culture are fully recognized.

“Let us briefly glance at some of the characteristics of this new education.

“Scientific education is catholic; it embraces the whole field of human learning. No student can master all knowledge in the short years of his academic life, but a young man of ability and industry may reasonably hope to master the outlines of science, obtain a deep insight into the methods of scientific research, and at the same time secure an initiation into some of the departments of science in such a manner that he may fully appreciate the multitude of facts upon which scientific conclusions rest, and be prepared to enter the field of scientific research himself and make additions to the sum of human knowledge. Honest investigation is but the application of common sense to the solution of the unknown. Science does not wait on genius, but is the companion of industry. Under the régime of the elder education the larger number of those who prepared them-

selves to be scholars by acquiring the languages in which scholarship was embodied never passed beyond the portal to knowledge, but speedily fell back into the ranks of the unlearned. Only the few went on to explore the fields open before them; *many were called, but few were chosen.* Scientific education takes men at once into the very midst of the new philosophy.'

It is true that there existed even in the recent past a tendency to undervalue the primary degrees in science, and several of the older institutions, where the ancient scholastic notions were most firmly rooted, although unwillingly forced to recognize and confer such degrees, persistently aimed to enhance the value of the arts degree by depreciating those in science. But the recognition of the fact that the modern subjects possessed in themselves the elements of culture; that they were often tolerated by and matured in minds to which the older topics were repugnant; that they were better adapted to the modern conditions of our progressive civilization, and that a noticeably large percentage of the winners of these degrees took high rank among scholars and leaders of thought and action have led to a continually increased respect for the science courses, so that to-day the number of students selecting the science in preference to arts courses, even without considering the schools of technology purely, is exceedingly large. Thus, for instance, we find that in 1892-'93 the candidates for undergraduate science degrees were to those for arts degrees in Cornell as 8:1; University of Michigan, 3.4:1; University of Pennsylvania, 3:1; Columbia College, 1.3:1; Yale, 1:2; Princeton, 1:2.2, and Harvard, 1:16.

This growth is a matter to be reckoned with by those who are charged with the direction of our institutions of learning, and it has been made a special subject of treatment by President Eliot in his last annual report, and, as he cannot be charged with having especially fostered such courses, his views have a peculiar interest when he says that while access to the schools of science is often easier than to the academic departments, "as a rule, there is more of the spirit of hard work in the scientific schools or courses than in the colleges or the college departments of universities. The motive of earning a livelihood

presses more constantly, and the students feel more distinctly that they are beginning their life-work, and that their future success may be determined by their present acquirements and the habits of work which they form. On the other hand, waste of time in sports, social enjoyments, and desultory reading is, by custom, tolerated more in colleges than in technical schools.

"The degrees in science are rapidly winning their way to public consideration and the respect of educated men. Thus it is the practice in the higher departments of Harvard University to put primary degrees in science, in many respects, on the same footing with the degree of Bachelor of Arts. For example, the degrees of Bachelor of Literature, Bachelor of Philosophy, and Bachelor of Science admits to the Law School and to the Medical School without examination, just as the degree of Bachelor of Arts. The Graduate School admits freely as candidates for appropriate degrees both graduates of colleges and graduates of scientific schools in good standing, and it is to be observed that *the holders of these newer degrees win valuable appointments in larger proportion than their number would entitle them to.*"

It is greatly to be feared that in the near future this movement will have gone so far in its course that the great value of the ancient classics and philosophy in our curricula will not be properly recognized. Whether or not the proper equilibrium will be maintained will be largely dependent on the work done in the Graduate Schools.

While students properly graduated from reputable schools of technology and application are freely admitted with students of arts to our Graduate School, and eventually, on satisfying our requirements, are awarded the same final degree, yet all, except students in engineering, are expected to select studies and investigate problems without regard to their applications, for a university is only such when it has for its object the pursuit of knowledge in the most exalted sense in which that term is used, namely, the ardent, methodical, independent search after truth in any and all its forms, but wholly irrespective of utilitarian application, and where there exists complete freedom of teaching and complete freedom of learning. Hence candidates are permitted to choose from the courses offered any of the subjects

which their attainments, aptitude, and experience qualifies them to pursue, and they are not subjected to any fixed schedule, prescribed attendance, set recitations, or definite limit of work. The work is to be as largely as possible individual so as to develop and preserve the best qualities of each person and to cultivate originality. The professor is to be the student's guide, philosopher, and friend, his example and his inspiration. They will meet at such times and places, at regular or irregular intervals, as they may mutually agree upon, and conduct the work in such manner and over such ground as the professor may deem most judicious. The professor will advise and supervise the student; direct his reading and bibliographic research so that it may be broad, suggestive, exhaustive, and relevant to the particular subject under consideration; assist him in his difficulties, but so that he may help himself and become self-reliant and resourceful; stimulate him if he lags and repress him if he attempts too much; attack his methods of work and criticise his discussions of his data and his deductions therefrom. The professor is the sole and final judge as to whether or not the candidate has sustained a satisfactory examination, and for any, except candidates for the doctor's degree, as to whether or not he has presented a satisfactory thesis showing high attainment in his chosen subject (though the professor may adopt such plan and call into consultation such experts to determine these facts as he deems best), while in the case of the doctorate thesis he will decide whether or not it is suitable for presentation to the board of experts and the candidate is sufficiently well prepared to successfully defend it.

In fixing the requirement for degrees it was further decided that candidates for the degree of Doctor of Philosophy should offer themselves in three topics for advanced study—one major and two collateral minor subjects. Before being admitted as candidates they shall pass satisfactory examinations in French and German.

To be eligible for the degree, candidates who hold master's degrees must pass two years in study at this University, they must sustain satisfactory examinations upon the three subjects which they may have elected, and they must present theses embodying the results of original research in their major sub-

ject, which theses they must be prepared to defend before a board of experts, and which must be accompanied by an exhaustive bibliography.

The requirement in French and German was recognized by general consent as an essential preliminary, since the literature in these tongues is so rich and of so important a nature; but, as the test to be applied was to determine the candidate's ability to use these tools of research rather than his culture, it was considered sufficient that he should be able to prove that he could easily and accurately read and render at sight works written in these languages on the subjects which he had elected for study, while it was understood that where the nature of the subject elected warranted it and the candidate desired to demonstrate that he possessed an equal familiarity with another tongue the Board of Directors of University studies might determine if this could be accepted as an equivalent.

As in the case of the master's degree, the candidate for the doctor's degree must present a thesis; but, while the master's thesis would be satisfactory if it showed a high attainment in the subject chosen for study, the doctor's thesis, to be satisfactory, must embody the results of original research and prove an actual contribution to knowledge—that is, while the master's thesis must give evidence of high attainment the doctor's thesis must not only give proof of this, but also of achievement.

Further, it must be accompanied by an exhaustive bibliography, which is an unusual requirement, but one which is in complete accord with modern practice in research work, while the compiling of such a bibliography is an essential preliminary in the carrying out of any original investigation in either science or art.

This requirement also but emphasizes the methods which are now being made a feature of undergraduate instruction in our more progressive institutions, where specially selected libraries are being introduced into the class-rooms and placed freely at the disposal of the student, while they are forced to consult these books and periodical literature by the many references and citations brought forth by the instructors. The growth of these libraries and the universal use made of them is a most encouraging feature in modern educational progress, for how-

ever troublesome and expensive it may be to teach thousands of students the abundant use of books it is the most important lesson that can be given them during their student life, since there is nothing more essential to scholarship than the habit of thorough comparative study of many books relating to whatever subject a student may have in hand; for the free use of books emancipates the student from the dominion of a text-book or single treatise; enables him to practice resort to original authorities; reveals to him the great extent to which matter once printed is copied from book to book, generation after generation; shows him how limited the data is from which some important and generally accepted conclusions have been deduced, and supplies him with the original data through which to verify or modify these conclusions by the application of more modern methods of analysis or treatment.

Besides this, it is especially fitting that we should demand this requirement, as bibliography has been cultivated to a high degree by the community amid which we exist, and it is most highly appreciated by the members thereof. It has engaged the attention of quite a number of the members of our faculties, and one among them has achieved great distinction for his unusually extensive and exhaustive labors in this field; it is taught by special lectures in certain schools of the University; and it should be, as it probably will come to be, recognized as a characteristic feature of our University work.

Besides these requirements there comes the final and most severe one of the defense of the thesis; a test in which the candidate, his senior professor, and the experts themselves are all under judgment. This requirement of the defense of the thesis was the subject of more consideration and discussion than any of the others, and was adopted only after mature deliberation. Although it is not a common practice among American universities, it was not objected to on the score of novelty, since it had been practiced for centuries in European universities, but because it was feared that it might be impracticable and become perfunctory.

* The German usage is described by Hart in his interesting work on the German universities when treating of the *Privat-docenten*. The work of the *Privat-docent* as a student is special.

For three or more years he has studied certain subjects exclusively, and has taken his doctoral degree by passing a vigorous examination covering the entire field of his studies and by presenting one or more dissertations that show his ability to treat certain topics in an independent, manly spirit of research; but with all this he is not yet a docent. The university has not yet conferred upon him the right to teach others. To obtain this he must qualify himself still further; he must habilitate himself. He waits, therefore, a year or two longer, pursuing his private studies with energy. He then prepares and publishes an elaborate dissertation. In connection with this he announces ten or twelve theses or detached propositions which he is prepared to defend against all comers, as Luther was when he affixed his famous theses to the door of the church at Wittenberg. The public disputation is held in one of the university rooms. The professors of the candidate's faculty attend. In fact, any one may attend who sees fit, and may take part in the debate. "Ordinarily the disputation is a mere ceremony. The candidate stands on the platform, like the knights in the Middle Ages, ready to maintain the merits of his lady-love. His antagonists are his friends, who have been instructed beforehand what to say. After four or five parleys, each lasting a few minutes, the antagonist admits the champion's superiority, and the dean pronounces him a true and worthy knight of science. Occasionally, however, some one of the theses is attacked in earnest, and then the candidate must also defend himself in earnest." A man like the graduate of Göttingen, a rather learned naturalist, who had traveled extensively and made a practice of attending disputations and bothering the candidates, was looked upon as a public nuisance. "It is needless to say that this disputation is an empty form to which no weight is attached, the real test of the candidate's merit being his dissertation, which has been read in print beforehand by each member of the faculty and which must be a substantial contribution to knowledge."

In spite of our cognizance of these facts and the knowledge that our matter-of-fact people would look with contempt on such a perfunctory performance as that described above, it was felt that the public defense of the theses, if properly conducted, possessed a positive value, in that it would stimulate the candi-

date to more thoroughly prepare his thesis and render him more cautious regarding his statements than might otherwise be the case, and thus result in his thesis being better fitted for publication than if it were only to be submitted for private inspection, and that it would further give to the examination that publicity which we court and which the community have a right to require when this high degree is conferred. By requiring that the entire thesis shall be maintained before a board composed of recognized experts in the particular subject treated of in the thesis, after these experts have had ample opportunity to privately examine the thesis in order to search out its weak points, and by establishing the practice that the experts shall state in writing whether or not the candidate has successfully defended his thesis, it is believed that we have secured the benefits sought while we have made the performance a real and vital one.

Because we court publicity in the work of this School, it was also decided that at the commencement exercises we should formally state, in the case of each individual candidate, all the reasons which led to the degree awarded him being conferred and narrate the candidate's entire academic history.

With all our plans matured and provisions made the uncertainty still remained as to whether students were at hand to avail themselves of the opportunities offered, and the beginning of our first scholastic year was enveloped in doubt, which was speedily dissipated by the number, character, and attainments of the candidates who presented themselves for enrollment, a number which exceeded our most sanguine expectations. The completion of the scholastic year in which our methods and requirements were to be for the first time put to the test of actual practice was awaited with anxiety, which was relieved by the behavior of the candidates, who prosecuted their studies so diligently and met all the requirements imposed so completely that out of the 24 enrolled 3 were awarded the degree of Master of Science, 8 that of Master of Arts, and 4 that of Doctor of Philosophy; and, still more, by the action of the eminent experts who so heartily coöperated with us and who conducted the disputation in so dignified and efficient a manner, that our distinguished President was fortunately able to say in the last annual report he was to make:

"The operations of the Graduate School have justified all the hopes under which it was originated and organized. The students have prosecuted their advanced studies under the direction of learned professors, and all candidates for degrees have been subjected to the strictest scrutiny. The condition of residence in Washington has been made obligatory in all cases, that the contact between the mind of the teacher and of the scholar may be so close and constant as to assure thoroughness of direction and accuracy of study at all points. In advanced study and in original research it is all-important that the directive, the regulative, and the corrective power of the superior instructor should be perpetually at the student's command, in order to assure the best possible results, and there is no inspiration like that which comes from the living mind of great teachers in quickening touch with receptive intellects. No degree has been conferred except on evidence authenticated by careful examinations.

"The doctorate disputation was held in the public lecture hall of the University on the 5th instant, when theses on the 'Elements of Unity in the Homeric Poems,' on an 'Investigation of the Motion of the Pericentre of Deimos,' one of the satellites of Mars; on the 'Flora of the Laramie Group and Allied Formation,' and on an 'Investigation of the Properties of Ferric Acid' were discussed and defended before a jury of experts competent in each case to pronounce judgment upon the value of the disquisition and of the original inquiry made by the writers. The faculty of the Graduate School hope in this way to win from 'mouths of wisest censure' such a confirmation of the highest degrees given under the auspices of the University as shall assure the circumspection with which they are granted."

Let us who are here look to it that this Graduate School of the Columbian University, which has begun so well, will be so wisely directed and generously fostered, will so elevate its standard and extend its privileges, that it shall come to be recognized everywhere as a stronghold of learning, a fertile source of knowledge, the pride of the nation whose capital it adorns, and a perpetual memorial to that wise and learned man who projected and inaugurated it.





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